

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	255	715/773,822,823.ccls.	US-PGPUB; USPAT; USOCR	OR	OFF	2006/06/24 14:46
L2	190	1 and (@ad<"20031119")	US-PGPUB; USPAT; USOCR	OR	OFF	2006/06/24 15:02
L3	37	2 and proxim\$3	US-PGPUB; USPAT; USOCR	OR	OFF	2006/06/24 14:51
L4	66	2 and (transparent or clear)	US-PGPUB; USPAT; USOCR	OR	OFF	2006/06/24 15:01
L5	1539	341/22.ccls.	US-PGPUB; USPAT; USOCR	OR	OFF	2006/06/24 15:01
L6	1142	5 and keyboard	US-PGPUB; USPAT; USOCR	OR	OFF	2006/06/24 15:01
L7	182	6 and transparent	US-PGPUB; USPAT; USOCR	OR	OFF	2006/06/24 15:01
L8	172	7 and (@ad<"20031119")	US-PGPUB; USPAT; USOCR	OR	OFF	2006/06/24 15:07
S32	135	("3940758").URPN.	USPAT	OR	OFF	2006/06/16 15:08
S33	71	S32 and (slid\$4 or glid\$3)	USPAT	OR	OFF	2006/06/16 15:09
S34	17	S32 and ((slid\$4 or glid\$3) with direction)	USPAT	OR	OFF	2006/06/16 15:09
S39	125	display and (keyboard with (slid\$4 or glid\$4 or retract\$4) with direction)	USPAT	OR	ON	2006/06/16 15:25
S85	9	display and (keyboard with deploy\$4 with direction)	USPAT	OR	ON	2006/06/19 19:53
S86	125	display and (keyboard with (slid\$4 or glid\$4 or retract\$4) with direction)	USPAT	OR	ON	2006/06/19 19:53

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S10 6	64	(US-20020186206-\$ or US-20030203747-\$ or US-20030078069-\$ or US-20010003707-\$ or US-20020186525-\$ or US-20030157971-\$).did. or (US-6985356-\$ or US-6437973-\$ or US-D448032-\$ or US-5661632-\$ or US-D519094-\$ or US-6883984-\$ or US-5410333-\$ or US-6580932-\$ or US-6636204-\$ or US-5821881-\$ or US-6628508-\$ or US-6829139-\$ or US-6850226-\$ or US-7003266-\$ or US-5941648-\$ or US-6734809-\$ or US-6798649-\$ or US-D517068-\$ or US-6671521-\$ or US-6297806-\$ or US-6373501-\$ or US-6215420-\$ or US-6914776-\$ or US-6587675-\$ or US-6977643-\$ or US-4517660-\$). did. or (US-6665173-\$ or US-5648771-\$ or US-6747635-\$ or US-6597384-\$ or US-6999804-\$ or US-D511334-\$ or US-5978215-\$ or US-6661404-\$ or US-6856507-\$ or US-6504706-\$ or US-4939514-\$ or US-7043284-\$ or US-6304430-\$ or US-7052195-\$ or US-6353529-\$ or US-6344967-\$ or US-6266234-\$ or US-7010333-\$ or US-D506196-\$ or US-7054146-\$ or US-5847698-\$ or US-6487396-\$ or US-6128372-\$ or US-5715524-\$ or US-6168331-\$ or US-6798429-\$ or US-6704007-\$). did. or (US-5336001-\$ or US-7006015-\$ or US-5871481-\$ or US-5657370-\$ or US-6137468-\$). did.	US-PGPUB; USPAT	OR	OFF	2006/06/19 21:09
S10 7	11	S106 and (orient\$5 with information with display)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/06/19 21:32
S11 0	11	S106 and (orient\$5 with (information or message)with display)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/06/19 21:32

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S11 1	11	S106 and (orient\$5 with (information or message) with display)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/06/19 21:49
S11 2	106	TAKAOKA near TOSHIAKI	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/06/19 21:40
S11 3	1	S112 and orientation	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/06/19 21:40
S11 4	3	S112 and orient\$5	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/06/19 21:40
S11 5	3197	display and (orient\$5 with (information or message) with display)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/06/19 21:53
S11 6	1005	S115 and keyboard	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/06/19 21:50
S11 7	643	S116 and direction	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/06/19 21:50
S11 8	676	S116 and direction	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/06/19 21:50

EAST Search History

S119	546	S118 and (@ad<"20031119")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/06/20 15:01
S120	198	S119 and (orient\$5 near5 (information or message) near5 display)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/06/19 21:53
S124	177	(transparent adj window) and pda	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/06/20 13:54
S136	595	keyboard with (transparent or clear) with (substrate or are or window or portion or layer)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/06/20 15:04
S137	1	(see-through) adj keyboard	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/06/20 15:16
S138	4	GAZKE.in.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/06/20 15:14
S139	2	(see adj through) adj keyboard	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/06/20 15:18
S140	17	("4954823").URPN.	USPAT	OR	OFF	2006/06/20 15:17
S141	474	(transparent or clear) adj keyboard	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/06/20 15:19

EAST Search History

S14 2	2	("5404186").URPN.	USPAT	OR	OFF	2006/06/20 15:27
S14 6	189	duc near dinh	US-PGPUB; USPAT; USOCR	OR	OFF	2006/06/20 16:18
S15 6	9	phantom adj keyboard	USPAT	OR	OFF	2006/06/20 19:19

EAST Search History

S16 7	125	(US-20030203747-\$ or US-20020186206-\$ or US-20020186525-\$ or US-20030078069-\$ or US-20030199290-\$ or US-20010003707-\$ or US-20030157971-\$ or US-20030117418-\$ or US-20020147384-\$ or US-20020109965-\$ or US-20020080152-\$ or US-20060022954-\$ or US-20050259071-\$ or US-20050181745-\$ or US-20050020327-\$ or US-20040249999-\$ or US-20030104859-\$ or US-20030064750-\$ or US-20020196599-\$ or US-20020086702-\$ or US-20020058529-\$ or US-20030157957-\$ or US-20030043118-\$ or US-20030039503-\$ or US-20020072395-\$ or US-20020051060-\$).did. or (US-20030119543-\$ or US-20030064758-\$ or US-20020173340-\$ or US-20020169010-\$).did. or (US-7003266-\$ or US-6850226-\$ or US-6829139-\$ or US-6628508-\$ or US-5821881-\$ or US-6636204-\$ or US-6437973-\$ or US-6985356-\$ or US-6747635-\$ or US-6504706-\$ or US-6734809-\$ or US-5941648-\$ or US-D517068-\$ or US-D506196-\$ or US-6798649-\$ or US-6587675-\$ or US-6168331-\$ or US-5410333-\$ or US-4939514-\$ or US-6128372-\$ or US-6215420-\$ or US-D511334-\$ or US-7054146-\$ or US-7043284-\$ or US-4517660-\$ or US-D448032-\$). did. or (US-7006015-\$ or US-6961147-\$ or US-7006077-\$ or US-6173194-\$ or US-6999804-\$ or US-6665173-\$ or US-5661632-\$ or US-6304430-\$ or US-6856507-\$ or US-6963349-\$ or US-6597384-\$ or US-6137468-\$ or US-7052195-\$ or US-5715524-\$ or US-5648771-\$ or US-6744890-\$ or US-6671521-\$ or US-6373501-\$ or US-5657370-\$ or US-6798429-\$ or US-6704007-\$ or US-6266234-\$ or US-5798750-\$ or US-6914776-\$ or US-5847698-\$ or US-6977643-\$ or US-6344967-\$) did. or (US-6883984-\$ or US-6353579-\$ or US-5978215-\$ or	US-PGPUB; USPAT	OR	OFF	2006/06/21 20:38
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EAST Search History

S16 8	0	S167 and ((grasp\$3 or gr?p\$3) near sensor)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/06/21 20:40
S16 9	0	S167 and ((proxim\$4) near sensor)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/06/21 20:40
S17 0	0	S167 and ((grasp\$3 or gr?p\$3) with sensor)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/06/21 20:40
S17 1	3	S167 and (hand with sensor)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/06/21 20:42
S17 2	5	S167 and ((hand or palm or finger) with sensor)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/06/21 20:43
S17 3	2005	345/168.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/06/21 20:43
S17 4	121	S173 and ((hand or palm) with sens\$3)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/06/21 21:07
S17 5	109	S174 and (@ad<"20031119")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/06/21 21:06

EAST Search History

S17 6	0	168-179.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/06/21 21:07
S17 7	7806	345/168-179.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/06/21 21:07
S17 8	603	S177 and ((hand or palm) with sens\$3)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/06/21 21:12
S17 9	140	S178 and (grip\$3 or grasp\$3)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/06/21 21:10
S18 0	414	S177 and ((hand or palm) with sens\$3 with grip\$3 or grasp\$3)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/06/21 21:16
S18 1	26	S177 and ((hand or palm) with sens\$3 with (grip\$3 or grasp\$3))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/06/21 21:12

EAST Search History

S19 0	145	(US-20030203747-\$ or US-20020186206-\$ or US-20020186525-\$ or US-20030043118-\$ or US-20030078069-\$ or US-20030199290-\$ or US-20060022954-\$ or US-20050259071-\$ or US-20040119697-\$ or US-20050219223-\$ or US-20010003707-\$ or US-20030157971-\$ or US-20030117418-\$ or US-20020080152-\$ or US-20020109965-\$ or US-20020147384-\$ or US-20050181745-\$ or US-20050020327-\$ or US-20040249999-\$ or US-20030064750-\$ or US-20020196599-\$ or US-20020086702-\$ or US-20020058529-\$ or US-20030104859-\$ or US-20030039503-\$ or US-20020072395-\$).did. or (US-20020051060-\$ or US-20030064758-\$ or US-20020173340-\$ or US-20020169010-\$ or US-20030157957-\$ or US-20030119543-\$ or US-20030201982-\$ or US-20040263479-\$).did. or (US-7003266-\$ or US-6850226-\$ or US-6829139-\$ or US-5821881-\$ or US-6628508-\$ or US-6636204-\$ or US-6437973-\$ or US-6747635-\$ or US-6985356-\$ or US-6504706-\$ or US-6734809-\$ or US-5941648-\$ or US-D517068-\$ or US-D506196-\$ or US-6798649-\$ or US-6587675-\$ or US-6480377-\$ or US-6168331-\$ or US-4939514-\$ or US-6128372-\$ or US-5410333-\$ or US-D511334-\$ or US-6215420-\$ or US-6057788-\$ or US-7054146-\$ or US-4517660-\$). did. or (US-7043284-\$ or US-7006015-\$ or US-7006077-\$ or US-D448032-\$ or US-6173194-\$ or US-6999804-\$ or US-6304430-\$ or US-6665173-\$ or US-5661632-\$ or US-6856507-\$ or US-6963349-\$ or US-6597384-\$ or US-6137468-\$ or US-7052195-\$ or US-5715524-\$ or US-5648771-\$ or US-6671521-\$ or US-5657370-\$ or US-6704007-\$ or US-5798750-\$ or US-6373501-\$ or US-6708470-\$ or US-6014776-\$ or	US-PGPUB; USPAT	OR	OFF	2006/06/23 10:55
6/24/2006 3:13:28 PM	C:\Documents and Settings\John11\My Documents\10717835.wsp	US-5657370-\$ or US-6704007-\$ or US-5798750-\$ or US-6373501-\$ or US-6708470-\$ or US-6014776-\$ or				Page 9

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S19 1	1441727	S190 ((key near activat\$3) with switch\$3 or sensor)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/06/23 10:57
S19 2	40	S190 and ((key near activat\$3) with switch\$3 or sensor)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/06/23 10:57
S19 3	0	S190 and ((key near activat\$3) with (switch\$3 or sensor) with hand)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/06/23 10:58
S19 4	0	S190 and ((key near activat\$3) with (switch\$3 or sensor) same hand)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/06/23 10:58
S19 5	4	345/168.ccls. and ((key near activat\$3) with (switch\$3 or sensor) same hand)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/06/23 10:58
S19 7	99729	display and keyboard	USPAT	OR	OFF	2006/06/23 10:59
S19 8	1746	S197 and (detect\$ near4 hand)	USPAT	OR	OFF	2006/06/23 11:09
S19 9	171	S197 and ((detect\$ near4 hand) with sensor)	USPAT	OR	OFF	2006/06/23 11:01
S20 0	86	S199 and activat\$3	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/06/23 11:01
S20 1	0	S197 and (detect\$ near4 hand near (activat\$3 with key))	USPAT	OR	OFF	2006/06/23 11:10
S20 2	0	S195 and (detect\$ near4 hand near (activat\$3 with key))	USPAT	OR	OFF	2006/06/23 11:10
S20 3	0	S195 and (detect\$ with hand with activat\$3 with key)	USPAT	OR	OFF	2006/06/23 11:10

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S20 4	5	keyboard and (detect\$ with hand with activat\$3 with key)	USPAT	OR	OFF	2006/06/23 11:31
S20 5	14	keyboard and ((detect\$ with hand) same (activat\$3 with key))	USPAT	OR	OFF	2006/06/23 11:46
S20 9	46	(keyboard adj2 mode) and ((cursor or pointing) adj2 mode)	US-PGPUB; USPAT; USOCR	OR	OFF	2006/06/23 19:12
S21 3	12218	345/156-184.ccls.	US-PGPUB; USPAT; USOCR	OR	OFF	2006/06/23 12:50
S21 4	54	S213 and (hand with support\$4 with sensor)	US-PGPUB; USPAT; USOCR	OR	OFF	2006/06/23 15:08
S21 5	7	S213 and (hand with support\$4 with detect)	US-PGPUB; USPAT; USOCR	OR	OFF	2006/06/23 12:51
S21 6	79	liebenow.in.	US-PGPUB; USPAT; USOCR	OR	OFF	2006/06/23 16:42
S21 7	36	takeuchi near takeshi	US-PGPUB; USPAT; USOCR	OR	OFF	2006/06/23 16:42
S22 0	29	"6121960"	US-PGPUB; USPAT; USOCR	OR	OFF	2006/06/24 11:50
S22 4	7	("5311175" "5786811" "5844506" "6067074" "6088516").PN. OR ("6680677"). URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2006/06/24 11:57
S22 5	718241	"7" and proxim\$4	US-PGPUB; USPAT; USOCR	OR	OFF	2006/06/24 11:57
S22 6	4	S224 and proxim\$4	US-PGPUB; USPAT; USOCR	OR	OFF	2006/06/24 12:03
S22 7	1579	murai.in.	US-PGPUB; USPAT; USOCR	OR	OFF	2006/06/24 12:03
S22 8	6	S220 and proxim\$3	US-PGPUB; USPAT; USOCR	OR	OFF	2006/06/24 12:05
S22 9	105	S227 and proxim\$3	US-PGPUB; USPAT; USOCR	OR	OFF	2006/06/24 12:05
S23 0	2	S229 and keyboard	US-PGPUB; USPAT; USOCR	OR	OFF	2006/06/24 12:53

* NOTICES *

JPO and NCIPi are not responsible for any damages caused by the use of this translation.

- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.**** shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the small keyboard equipment used for a portable information terminal equipment etc.

[0002]

[Description of the Prior Art] In recent years, in a portable information terminal equipment, cores, such as MPU, are mostly miniaturized to the limitation and the factors which have determined case size are the display of information, such as LCD, the input section of the information on a keyboard etc., etc. Especially, about a keyboard, the miniaturization of size and the ease of carrying out of alter operation have the relation of rebellion, and the problem of being unable to make it small is below in fixed size from such a situation.

[0003] In order to solve such a problem, a technique like JP,63-108422,A is proposed. This technique assigns two Roman alphabets to each of ten keys, and makes a hidden condition the condition of a table, and the alphabetic character of another side for one alphabetic character. And based on the Japanese description, it changes whether the condition of the key operated next by whether the vowel was pushed or the consonant was pushed is changed into the condition of a table, or it changes into a hidden condition. Thus, as a Japanese input can be performed by few keys, the miniaturization of a keyboard is in drawing. Moreover, the simultaneous stroke of the adjacent key is carried out if needed with one finger, and an alphabetic character etc. is inputted into JP,3-86437,U. Thus, a fixed miniaturization is realizable.

[0004]

[Problem(s) to be Solved by the Invention] However, with the technique of above-mentioned JP,63-108422,A, the keys must be touched checking a vowel and a consonant for whether the condition of operating it now is in the condition of a table, and whether it is in a hidden condition one by one, and it is easy to produce the input mistake by a misapprehension etc. Moreover, with the technique of JP,3-86437,U, although a fixed miniaturization can be performed, in order to prevent an input mistake, an extreme miniaturization cannot be desired.

[0005] This invention is made in view of the above-mentioned situation, and by giving two or more functions to the same key, and performing a functional change automatically according to an actuation condition, even if the object collects the number of keyboards, it is to offer the small keyboard equipment with which an input mistake cannot occur easily.

[0006]

[Means for Solving the Problem] the function of plurality [key / same] in order that this invention may solve the above-mentioned technical problem -- assigning -- right and left -- it is keyboard equipment characterized by miniaturizing a keyboard, collecting the number of keyboards and maintaining the conventional function by changing a function automatically by with which finger it was operated. That is, it is small keyboard equipment characterized by detecting in detail whether it inputted whether it inputted with that an actuation condition when the key of arbitration is pressed is one hand maintenance,

or it is both hands maintenance, or right hand with the left hand by the sensor, and keying by making automatic selection of the function assigned to each mode.

[0007] That is, the keyboard equipment concerning claim 1 is characterized in the keyboard equipment which performs an entry of data by for the sensor section which detects the existence of a grasping condition and the actuation condition of a keyboard to be prepared in the location of the key group by which two or more functions were assigned to each key, and the both sides which grasp a keyboard, respectively, and to change the function of a keyboard to keyboard equipment with the detection signal of each sensor section.

[0008] The keyboard equipment concerning claim 2 is set to keyboard equipment according to claim 1. When each of each sensor sections detects that the keyboard was grasped, The sensor section of the side by which the key stroke was made is characterized by ordering the operated key so that the function beforehand defined between two or more functions which detected the actuation condition and were assigned to the operated key may be chosen.

[0009] The keyboard equipment concerning claim 3 is set to keyboard equipment according to claim 2. When it detects that the sensor section consisted of pressure-sensitive sensors, and each pressure-sensitive sensor grasped the both sides of a keyboard with both hands, It is characterized by ordering the operated key so that the function displayed on the pressure-sensitive sensor side by which the near pressure-sensitive sensor by which the key stroke was made detected thrust between two or more functions which detected the thrust of a key stroke and were assigned to the operated key may be chosen.

[0010] The keyboard equipment concerning claim 4 is set to keyboard equipment according to claim 2. When a sensor detects that the section consisted of electrostatic-capacity type sensors, and each electrostatic-capacity type sensor grasped the both sides of a keyboard with both hands, The near electrostatic-capacity type sensor by which the key stroke was made detects change of the area which grasps a keyboard. It is characterized by ordering the operated key so that the function displayed on the electrostatic-capacity sensor side which detected change of area between two or more functions assigned to the operated key may be chosen.

[0011] When the keyboard equipment concerning claim 5 detects that the keyboard was grasped for the inside of each sensor section, and one of the sensor sections in keyboard equipment according to claim 1, a keyboard is changed to the browsing function which chooses an informational menu, and is characterized by the predetermined key group of a keyboard operating only for browsing.

[0012] The key group in which the keyboard equipment concerning claim 6 operates only for browsing in keyboard equipment according to claim 5 is characterized by being arranged according to an individual near the location of the both sides which grasp a keyboard, respectively. Moreover, the keyboard equipment concerning claim 7 is characterized by the sensor section being in any of a pressure-sensitive sensor or an electrostatic-capacity type sensor in keyboard equipment according to claim 5 or 6.

[0013] The keyboard equipment concerning claim 8 is characterized by preparing the sensor section in the rear face of the both sides which grasp a keyboard in the keyboard equipment of claim 1 - claim 7 given in any 1 term. Moreover, the keyboard equipment concerning claim 9 is characterized by arranging the key for control which chooses which function from two or more functions assigned to each key at the rear face of the both sides which grasp a keyboard in the keyboard equipment of claim 1 - claim 8 given in any 1 term.

[0014] The sensor section by which the keyboard equipment concerning claim 10 was formed in the rear face in keyboard equipment according to claim 8 is characterized by being arranged in the slot which can insert the finger which grasps a keyboard. Moreover, the keyboard equipment concerning claim 11 is characterized by preparing in the slot the key for control which chooses which function from two or more functions assigned to each key in keyboard equipment according to claim 10.

[0015] In the keyboard equipment which performs an entry of data, the keyboard equipment concerning claim 12 in the front face near [which grasps keyboard equipment] both sides In the rear face near [which the actuation key group only for browsing which chooses an informational menu is arranged,

respectively and grasps keyboard equipment] both sides The sensor section which detects the existence of the grasping condition of said keyboard is prepared, respectively, and the sensor section which detected grasping of a keyboard is characterized by giving an operating command to the key group which operates only for [the side by which this sensor section has been arranged] browsing. Moreover, the sensor section is characterized by the keyboard equipment concerning claim 13 being in any of a pressure-sensitive sensor or an electrostatic-capacity type sensor in keyboard equipment according to claim 12.

[0016]

[Embodiment of the Invention] Hereafter, the gestalt of some operations of this invention is explained to a detail using a drawing. Drawing 1 is the external view of the keyboard of the gestalt of operation of the 1st of this invention, it is surface drawing, (b) is rear-face drawing, and (a) explains the gestalt of the 1st operation using this drawing.

[0017] The multifunctional key group 3 is assigned to the front face of a keyboard 1, and the control key groups 7, such as the sensor sections 5a and 5b and SHIFT/CTRL/ALT, are assigned to the rear face. Two or more functions are assigned to each key of the multifunctional key group 3 like multifunctional key 3b to which the function of multifunctional key 3a to which the function of "Q" and "Y" was assigned, and "W" and "U" was assigned. These multifunctional keys 3a and 3b etc. are constituted by ON/OFF of the signal from the sensors 5a and 5b on the back, and a control key 7 so that the function for every key may be chosen.

[0018] A pressure-sensitive sensor or the sensor of a capacitive sensing method can be used for the sensor sections 5a and 5b arranged at the rear face of a keyboard 1, and the actuation condition of a key input of a user can be read now. Namely, it can detect whether it supports single hand whether the keyboard 1 is supported with both hands, or an input can detect now whether it was made with the right hand and whether it was made with the left hand. In addition, a piezo-electric sensor etc. is used as a pressure-sensitive sensor, and the capacitor sensor etc. is used as a sensor of a capacitive sensing method. By having good control of striking the multifunctional key group 3 of the keyboard 1 of such a configuration in any direction by the hand on either side, the number of keys was reduced even to conventional one half extent, with the conventional function maintained, and the miniaturization of a keyboard is realized.

[0019] Next, actuation of the keyboard of the gestalt of this operation is explained. Drawing 2 is drawing showing the condition of grasping and using the portable information terminal equipment equipped with the keyboard of the gestalt of the 1st operation with both hands. Moreover, drawing 3 is drawing showing the condition of grasping and using the ***** terminal equipment equipped with the keyboard of the gestalt of the 1st operation single hand. usually, the portable information terminal equipment 11 is indicated to be the case (henceforth both-hands grasping actuation) where a keyboard 1 is put and operated from right and left by hand to drawing 3 , as shown in drawing 2 -- as -- right and left -- it is in any in the case (henceforth one hand grasping actuation) of having by one of hands and operating it single hand.

[0020] Therefore, two kinds of these activity gestalten are distinguished by the sensors 5a and 5b installed in the rear face of a keyboard 1. moreover -- the case where two sensors 5a and 5b detect both grasping -- a pressure-sensitive sensor -- the thrust of a key -- sensing -- right and left -- by which hand the key was pressed detects -- having -- the sensor of a capacitive sensing method -- a difference of the grasp area of a hand -- right and left -- it is detected by which hand the key was pressed. For example, when it is operated by both-hands grasping, and it is operated with the left hand and the portable information terminal equipment 11 is inputted into multifunctional key 3a of drawing 1 like drawing 2 , "Q" as which the pressure-sensitive sensor of left-hand side sensor section 5a detected thrust, and was displayed on multifunctional key 3a in the signal on the left-hand side of delivery and multifunctional key 3a is inputted from a keyboard 1. Similarly, when alter operation is made with the right hand, "Y" as which the pressure-sensitive sensor of right-hand side sensor section 5b detected thrust, and was displayed on multifunctional key 3a by delivery and right-hand side in the signal is inputted from a keyboard 1. It is also the same as when the sensor sections 5a and 5b are electrostatic-capacity type

sensors. Moreover, a selection input is performed as well as the above-mentioned when which key of the multifunctional key group 3 is operated. Thus, few keys can perform various functions alter operation. [0021] moreover -- that the keyboard equipment of the gestalt of this operation has a bag in one hand, or has held to the strap in case the object is a portable information terminal equipment etc. and uses these portable information terminal equipments **** -- etc. -- it is expected that there is also an opportunity to operate single hand, standing. Thus, when operating it by one hand grasping, it is in the condition which does not have an input thoroughly, and, unlike the case where they are the above both-hands actuation, the function of a key cannot be selected for sensor (for example, 5b) of one of the two by the sensor. therefore, the case of one hand maintenance actuation -- the function of a keyboard -- browsing of information, such as the Internet, -- specializing -- moreover, right and left -- it can also use by enabling it to perform same actuation by both of the hands as keyboard equipment which offers the quick operating environment in one hand.

[0022] That is, the gestalt of the 2nd operation used as such an application is explained. Drawing 4 is the external view of the keyboard equipment of the gestalt of operation of the 2nd of this invention, the multifunctional key groups 23 and 25 which have the same function as the field of each right and left by the side of a front face in a keyboard 21 are arranged, and the arrow-key group 23-1 as shown in the wavy line of drawing, and 25-1 are arranged at each 1 block. In addition, to the rear-face side of a keyboard 21, completely like the gestalt of the 1st operation, although the sensor section and a control key group are assigned to right-and-left both sides, the drawing by the side of a rear face is omitted.

[0023] The case where the keyboard 21 of the gestalt of the 2nd operation is operated is explained. an operator -- right and left of a keyboard 21 -- it has by hand any they are, and if it is going to operate it, the sensor section which is not illustrated will detect it as one hand grasping actuation, and the arrow-key group 23-1 by the side of the detected sensor section or any of 25-1 will start a function. For example, when having and operating it with the left hand, the left-hand side arrow-key group 23-1 becomes a mode of operation, operates which arrow key of the arrow-key group 23-1, chooses PURAUZA, and accesses the Internet etc. It is also the same as when had by the right-hand side hand. Thus, in one hand grasping actuation, the sensor section detects the condition and specializes a keyboard function in informational browsing.

[0024] Next, the gestalt of operation of the 3rd of this invention is explained. Drawing 5 is the perspective view which looked at the keyboard of the gestalt of the 3rd operation from the rear face. That is, also when a keyboard 31 is placed on a desk, the slot 35 which made the form of a finger the sensor section 33 by the side of the rear face of a keyboard 31 is formed so that actuation of a certain kind can be performed. It is made to have not detected the sensor section 33 only by placing a keyboard on a desk by arranging the sensor section 33 in this slot 35. Therefore, only when the operator fang furrow section 33 is edited and a keyboard 21 is grasped, it is constituted so that the sensor section 33 may detect. Of course, the sensor section 33 and a slot 35 are established in the both sides which grasp a keyboard 31 like the gestalt of the 1st operation.

[0025] In addition, at this time, it constitutes so that the duty of the control key with which the sensor sections 33 installed into each slot 35 differed, respectively may also be made to serve a double purpose. For example, when there is no input in the sensor section 33 of the rear face of a keyboard 31, it also enables it to use it also as a desktop computer by adding a function which serves as arrangement mainly concerned with the numerical keypad. moreover, the case where it is made such a configuration -- the pressure of each finger, or the difference of a touch area -- right and left -- it can distinguish whether it was operated by which hand, and a control key on the back can also be operated by imposing the force on a specific finger still more intentionally.

[0026] The gestalt of the operation described above is an example for explaining this invention, this invention is not limited to the gestalt of the above-mentioned operation, and various deformation is possible for it in the range of the summary of invention. For example, a photosensor etc. can be used for the sensor section and the electric shielding area of light etc. can also perform the same detection as the above. In addition, if it is the configuration that it can detect whether it could detect whether it had a keyboard with both hands, or it had single hand, and which near finger performed alter operation,

automatic selection of the function of each key equipped with two or more functions can be made, and alter operation can be performed in short although various sensing methods can be considered, it is not necessary to say going into the range of this invention altogether.

[0027]

[Effect of the Invention] According to the keyboard equipment of this invention, as explained above, two or more functions are assigned to one key, and since it can choose, the magnitude of a keyboard can be miniaturized for these functions by actuation of the finger to operate, without [automatic] reducing the function of a keyboard. Moreover, while being able to reduce further the number of keys on the front face of a keyboard by installing keys for control, such as SHIFT and CONTROL, in the rear face of a keyboard, the more excellent operability is realizable. That is, since the key for control can be operated with the actuation which grasped the keyboard, difficult actuation can be realized by the small keyboard [say / pressing two or more keys simultaneously]. Furthermore, the activity of a pointing device etc. can offer a comfortable operating environment only with a keyboard also in a difficult situation by preparing the actuation only for [information] browsing.

[Translation done.]